# CONTENTS

## NUMBER 1

5 27 37 51 65	Stress corrosion cracking of 18 carat gold  Corrosion inhibition study of pure Al and some of its alloys in 1.0 M HCl solution by impedance technique A TEM study of the oxide scale development in Ni–Cr–Al alloys On the pitting corrosion currents of zinc by chloride anions Improved corrosion behavior of nanocrystalline zinc produced by pulse-current electrodeposition Spectrophotometric study of the anodic corrosion of Ti/RuO <sub>2</sub> electrode in acid sulfate solution  The characterization and corrosion resistance of cerium
27 37 51 65	Corrosion inhibition study of pure Al and some of its alloys in 1.0 M HCl solution by impedance technique A TEM study of the oxide scale development in Ni–Cr–Al alloys On the pitting corrosion currents of zinc by chloride anions Improved corrosion behavior of nanocrystalline zinc produced by pulse-current electrodeposition Spectrophotometric study of the anodic corrosion of Ti/RuO <sub>2</sub> electrode in acid sulfate solution
27 37 51 65	1.0 M HCl solution by impedance technique A TEM study of the oxide scale development in Ni-Cr-Al alloys On the pitting corrosion currents of zinc by chloride anions Improved corrosion behavior of nanocrystalline zinc produced by pulse-current electrodeposition Spectrophotometric study of the anodic corrosion of Ti/RuO <sub>2</sub> electrode in acid sulfate solution
27 37 51 65	1.0 M HCl solution by impedance technique A TEM study of the oxide scale development in Ni-Cr-Al alloys On the pitting corrosion currents of zinc by chloride anions Improved corrosion behavior of nanocrystalline zinc produced by pulse-current electrodeposition Spectrophotometric study of the anodic corrosion of Ti/RuO <sub>2</sub> electrode in acid sulfate solution
37 51 65	A TEM study of the oxide scale development in Ni-Cr-Al alloys On the pitting corrosion currents of zinc by chloride anions Improved corrosion behavior of nanocrystalline zinc produced by pulse-current electrodeposition  Spectrophotometric study of the anodic corrosion of Ti/RuO <sub>2</sub> electrode in acid sulfate solution
37 51 65	A TEM study of the oxide scale development in Ni-Cr-Al alloys On the pitting corrosion currents of zinc by chloride anions Improved corrosion behavior of nanocrystalline zinc produced by pulse-current electrodeposition  Spectrophotometric study of the anodic corrosion of Ti/RuO <sub>2</sub> electrode in acid sulfate solution
51 65	On the pitting corrosion currents of zinc by chloride anions Improved corrosion behavior of nanocrystalline zinc produced by pulse-current electrodeposition  Spectrophotometric study of the anodic corrosion of Ti/RuO <sub>2</sub> electrode in acid sulfate solution
65	Improved corrosion behavior of nanocrystalline zinc produced by pulse-current electrodeposition Spectrophotometric study of the anodic corrosion of Ti/RuO <sub>2</sub> electrode in acid sulfate solution
	by pulse-current electrodeposition Spectrophotometric study of the anodic corrosion of Ti/RuO <sub>2</sub> electrode in acid sulfate solution
	electrode in acid sulfate solution
75	electrode in acid sulfate solution
75	The characterization and corrosion resistance of cerium
75	The characterization and corrosion resistance of cerium
	chemical conversion coatings for 304 stainless steel
91	Characterization of passive films on tin through transient electrochemical techniques
109	Electrochemical corrosion of unalloyed copper in chloride
	media—a critical review
137	Influence of organic matter on orthophosphate corrosion inhibition for copper pipe in soft water
147	Corrosion behaviour of powder metallurgical and cast
	Al-Zn-Mg base alloys
159	Citric acid as corrosion inhibitor for aluminium pigment
169	Electrochemical impedance study on galvanized steel corrosion
	under cyclic wet-dry conditions-influence of time of wetness
183	Wettability and corrosion of AIN-BN-C ceramics by a SiCa treated liquid steel
193	Stress corrosion cracking of steam turbine disc steel—measure- ment of the crack-tip potential
213	Atmospheric oxidation of a Nb-Zr alloy studied with XPS
225	Hydrogen permeation and corrosion behavior of high strength steel MCM 430 in cyclic wet-dry SO <sub>2</sub> environment
245	In situ STM study of the duplex passive films formed on Cu(1 1 1) and Cu(0 0 1) in 0.1 M NaOH
1	Corrosion diary
III	Keywords for Corrosion Science
	109 137 147 159 169 183 193 225 245

# NUMBER 2

J. T. B. GUNDERSEN, A. AYTAC, S. ONO, J. H. NORDLIEN and	265	Effect of trace elements on electrochemical properties and corrosion of aluminium alloy AA3102
K. Nişancioğlu		
JJ. PARK and SI. PYUN	285	Stochastic approach to the pit growth kinetics of Inconel alloy 600 in Cl <sup>-</sup> ion-containing thiosulphate solution at temperatures 25–150 °C by analysis of the potentiostatic current transients
Y. LIU, P. SKELDON,	297	Chromate conversion coatings on aluminium: influences of
G. E. THOMPSON, H. HABAZAKI and K. SHIMIZU		alloying
K. Aramaki and T. Shimura	313	Self-assembled monolayers of carboxylate ions on passivated iron for preventing passive film breakdown
T. ISHIKAWA, K. MATSUMOTO, A. YASUKAWA, K. KANDORI,	329	Influence of metal ions on the formation of artificial zinc rusts
T. NAKAYAMA and T. TSUBOTA		
R. NISHIMURA and Y. MAEDA	343	Stress corrosion cracking of type 304 austenitic stainless steel in sulphuric acid solution including sodium chloride and chromate
A. P. YADAV, A. NISHIKATA and T. TSURU	361	Degradation mechanism of galvanized steel in wet-dry cyclic environment containing chloride ions

F. Czerwinski	377	The early stage oxidation and evaporation of Mg-9%Al-1%Zn alloy
G. Moretti, F. Guidi and G. Grion	387	Tryptamine as a green iron corrosion inhibitor in 0.5 M deaerated sulphuric acid
X. LIU, G. S. FRANKEL, B. ZOOFAN and S. I. ROKHLIN	405	Effect of applied tensile stress on intergranular corrosion of AA2024-T3
CC. Shih, CM. Shih, YY. Su, L. H. J. Su, MS. Chang and	427	Effect of surface oxide properties on corrosion resistance of 316L stainless steel for biomedical applications
SJ. LIN G. W. HAN, D. FENG and B. DENG	443	Metal dusting and coking of alloy 803
B. BOZZINI, G. P. DE GAUDENZI, A. FANIGLIULO and C. MELE	453	Electrochemical oxidation of WC in acidic sulphate solution
J. K. PAIK, A. K. THAYAMBALLI, Y. I. PARK and J. S. HWANG	471	A time-dependent corrosion wastage model for seawater ballast tank structures of ships
J. SHANKAR, A. UPADHYAYA and R. BALASUBRAMANIAM	487	Electrochemical behavior of sintered oxide dispersion strength- ened stainless steels
S. Jouen, M. Jean and B. Hannoyer	499	Atmospheric corrosion of nickel in various outdoor environ- ments
D. I.M. O. L. K.	I	Corrosion diary
	III	Keywords for Corrosion Science

		NUMBER 3
Letter		
J. M. SYKES	515	A variant of the Brasher-Kingsbury equation
Papers		
B. WANG, C. SUN, J. GONG,	519	Oxidation behaviour of the alloy IC-6 and protective coatings
R. HUANG and L. WEN		
S. Modiano, C. S. Fugivara and	529	Effect of citrate ions on the electrochemical behaviour of low-
A. V. BENEDETTI		carbon steel in borate buffer solutions
I. T. E. FONSECA, R. PICCIOCHI,	547	The atmospheric corrosion of copper at two sites in Portugal: a
M. H. MENDONÇA and		comparative study
A. C. RAMOS		
N. Mora, E. Cano, J. L. Polo,	563	Corrosion protection properties of cerium layers formed on
J. M. PUENTE and J. M. BASTIDAS		tinplate
A. A. EL-SHAFEI,	579	The role of indole and its derivatives in the pitting corrosion of
S. A. ABD EL-MAKSOUD		Al in neutral chloride solution
and A. S. FOUDA		
S. A. SEREBRINSKY and	591	Effect of the strain rate on stress corrosion crack velocities in
J. R. GALVELE		face-centred cubic alloys. A mechanistic interpretation
D. LAVERDE, T. GÓMEZ-ACEBO	613	Continuous and cyclic oxidation of T91 ferritic steel under steam
and F. Castro		
Y. K. AGRAWAL, J. D. TALATI,	633	Schiff bases of ethylenediamine as corrosion inhibitors of zinc in
M. D. Shah, M. N. Desai and		sulphuric acid
N. K. Shah		
E. ROCCA, C. RAPIN and	653	Inhibition treatment of the corrosion of lead artefacts in
F. MIRAMBET		atmospheric conditions and by acetic acid vapour: use of sodium decanoate
J. ZHANG, A. SCHNEIDER and	667	Cementite decomposition and coke gasification in He and
G. INDEN		H <sub>2</sub> -He gas mixtures
Tz. Boiadjieva, D. Kovacheva,	681	Effect of anodic treatment on the composition and structure of
V DETROY & HARDCASTIF and		alastradonositad 7n Cr allow agatings

K. Petrov, S. Hardcastle and electrodeposited Zn-Cr alloy coatings M. Money J. T. B. GUNDERSEN, A. AYTAC, 697 Effect of heat treatment on electrochemical behaviour of binary J. H. NORDLIEN and aluminium model alloys K. Nişancioğlu E. M. K. HILLIER and 715 Hydrogen embrittlement of high strength steel electroplated with M. J. ROBINSON zinc-cobalt alloys B. POULSON 729 A simple SCC specimen incorporating heat transfer with a crevice or deposits R. NISHIMURA and Y. MAEDA 755 Metal dissolution and maximum stress during SCC process of ferritic (type 430) and austenitic (type 304 and type 316) stainless

steels in acidic chloride solutions under constant applied stress

		Vitalic Contents
R. NISHIMURA and Y. MAEDA	769 I III	SCC evaluation of type 304 and 316 austenitic stainless steels in acidic chloride solutions using the slow strain rate technique Corrosion diary Keywords for Corrosion Science
Letter		NUMBER 4
JS. HAN and JH. PARK	787	Detection of corrosion steel under an organic coating by infrared photography
Papers		
J. GALLARDO, A. DURÁN and	795	Electrochemical and in vitro behaviour of sol-gel coated 316L
J. J. DE DAMBORENEA JD. KIM and JH. MOON	807	stainless steel C-ring stress corrosion test for Inconel 600 and Inconel 690 sleeve joint welded by Nd:YAG laser
S. M. A. SHIBLI, V. S. GIREESH and S. GEORGE	819	Surface catalysis based on ruthenium dioxide for effective activation of aluminium sacrificial anodes
S. PIAZZA, M. SPERANDEO, C. SUNSERI and F. DI QUARTO	831	Photoelectrochemical investigation of passive layers formed on Fe in different electrolytic solutions
Y. S. ZHANG, X. M. ZHU	853	Effect of alloying elements on the electrochemical polarization
and S. H. ZHONG		behavior and passive film of Fe-Mn base alloys in various aqueous solutions
M. Geetha,	877	Influence of microstructure and alloying elements on corrosion
U. KAMACHI MUDALI, A. K. GOGIA, R. ASOKAMANI and		behavior of Ti-13Nb-13Zr alloy
B. RAJ		
S. L. WINKLER, M. P. RYAN and	893	Pitting corrosion in cast 7XXX aluminium alloys and fibre
H. M. FLOWER S. L. WINKLER and H. M. FLOWER	903	reinforced MMCs
S. L. WINKLER and H. M. FLOWER	903	Stress corrosion cracking of cast 7XXX aluminium fibre reinforced composites
A. Fossati, F. Borgioli,	917	Corrosion resistance properties of plasma nitrided Ti-6Al-4V
E. GALVANETTO and T. BACCI G. P. CICILEO, M. A. CRESPO and	929	alloy in nitric acid solutions
B. M. Rosales	929	Comparative study of patinas formed on statuary alloys by means of electrochemical and surface analysis techniques
G. Song, B. Johannesson,	955	Galvanic corrosion of magnesium alloy AZ91D in contact with
S. HAPUGODA and D. STJOHN		an aluminium alloy, steel and zinc
K. Ogle, A. Tomandl, N. Meddahi and M. Wolpers	979	The alkaline stability of phosphate coatings I: ICP atomic
A. TOMANDL, M. WOLPERS and	997	emission spectroelectrochemistry The alkaline stability of phosphate coatings II: in situ Raman
K. OGLE	,,,	spectroscopy
X. Q. Wu, H. M. Jing,	1013	Resistance of Mo-bearing stainless steels and Mo-bearing
Y. G. ZHENG, Z. M. YAO and		stainless-steel coating to naphthenic acid corrosion and
W. KE M. A. ARENAS, I. GARCÍA and	1033	erosion-corrosion X-ray photoelectron spectroscopy study of the corrosion
J. DE DAMBORENEA	1033	behaviour of galvanised steel implanted with rare earths
	ī	Corrosion diary

M. B. J. G. Freitas, C. Eiras and L. O. S. Bulhões	1051	Breakdown of the niobium oxide film under galvanostatic polarisation and in acid solutions
K. Darowicki and K. Zakowski	1061	A new time-frequency detection method of stray current field interference on metal structures
S. S. ABD EL REHIM, H. H. HASSAN and N. F. MOHAMED	1071	Anodic behaviour of tin in maleic acid solution and the effect of some inorganic inhibitors
A. G. ZELINSKY, B. YA. PIROGOV and O. A. YURJEV	1083	Open circuit potential transients and electrochemical quartz crystal microgravimetry measurements of dissolution of copper in acidic sulfate solutions
S. SUNDER, N. H. MILLER and D. W. SHOESMITH	1095	Corrosion of uranium dioxide in hydrogen peroxide solutions

**NUMBER 5** 

Corrosion diary Keywords for Corrosion Science

I

C. OSTWALD and H. J. GRABKE	1112	Initial axidation and chromium diffusion I Effects of surface
C. OSTWALD and H. J. GRABKE	1113	Initial oxidation and chromium diffusion. I. Effects of surface working on 9–20% Cr steels
A. K. MAAYTA and	1129	Inhibition of acidic corrosion of pure aluminum by some organic
N. A. F. AL-RAWASHDEH R. LINDSTRÖM, LG. JOHANSSON,	1141	compounds Corrosion of magnesium in humid air
G. E. THOMPSON, P. SKELDON and	1141	Corrosion of magnesium in numid air
JE. Svensson		
G. ENGELHARDT and	1159	Estimation of corrosion cavity growth rate for predicting system
D. D. MACDONALD		service life
A. R. MENDOZA, F. CORVO,	1189	Influence of the corrosion products of copper on its atmospheric
A. GÓMEZ and J. GÓMEZ		corrosion kinetics in tropical climate
J. M. C. Mol, A. E. Hughes,	1201	A morphological study of filiform corrosive attack on chro-
B. R. W. HINTON and		mated and alkaline-cleaned AA2024-T351 aluminium alloy
S. VAN DER ZWAAG		
C. MONTICELLI, A. FRIGNANI and F. Zucchi	1225	Investigation on the corrosion process of carbon steel coated by HVOF WC/Co cermets in neutral solution
A. TURNBULL and S. ZHOU	1239	Pit to crack transition in stress corrosion cracking of a steam
A. TURNBULL and S. ZHOU	1239	turbine disc steel
M. DOHERTY and J. M. SYKES	1265	Micro-cells beneath organic lacquers: a study using scanning
M. DONERTI WING J. M. OTRES	1200	Kelvin probe and scanning acoustic microscopy
N. WASHIZU, Y. KATADA and	1291	Role of H <sub>2</sub> O <sub>2</sub> in microbially influenced ennoblement of open
T. KODAMA		circuit potentials for type 316L stainless steel in seawater
M. ITAGAKI, R. NOZUE,	1301	Electrochemical impedance of thin rust film of low-alloy steels
K. WATANABE, H. KATAYAMA		
and K. Noda		
	I	Corrosion diary
	V	Keywords for Corrosion Science
		NUMBER 6
M. A. UUSITALO,	1311	High temperature corrosion of coatings and boiler steels below
P. M. J. Vuoristo and T. A. Mäntylä		chlorine-containing salt deposits
A. Popova, M. Christov,	1333	Adsorption and inhibitive properties of benzimidazole deriva-
S. RAICHEVA and E. SOKOLOVA	1333	tives in acid mild steel corrosion
E. ANGELINI, B. DE BENEDETTI	1351	Microstructural evolution and localized corrosion resistance of
and F. ROSALBINO	1551	an aged superduplex stainless steel
M. Li, S. Luo, C. Zeng, J. Shen,	1369	Corrosion behavior of TiN coated type 316 stainless steel in
H. LIN and C. CAO		simulated PEMFC environments
G. Song and D. StJohn	1381	Corrosion behaviour of magnesium in ethylene glycol
PH. DILLMANN, F. MAZAUDIER	1401	Advances in understanding atmospheric corrosion of iron.
and S. HŒRLÉ		I. Rust characterisation of ancient ferrous artefacts exposed to
C. W F. M.	1.40	indoor atmospheric corrosion
S. HŒRLĖ, F. MAZAUDIER,	1431	Advances in understanding atmospheric corrosion of iron.
PH. DILLMANN and G. SANTARINI H. Huo, Y. Li and F. Wang	1467	II. Mechanistic modelling of wet-dry cycles Corrosion of AZ91D magnesium alloy with a chemical
II. HOO, I. LI and F. WANG	140/	conversion of AZ91D magnesium alloy with a chemical conversion coating and electroless nickel layer
G. GOODLET, S. FATY,	1479	The electronic properties of sputtered chromium and iron oxide
S. CARDOSO, P. P. FREITAS,		films
A. M. P. SIMÕES.		
M. G. S. FERREIRA and		
M. DA CUNHA BELO		
CA. Huang, YZ. Chang and	1501	The electrochemical behavior of austenitic stainless steel with
S. C. CHEN		different degrees of sensitization in the transpassive potential
		region in 1 M H <sub>2</sub> SO <sub>4</sub> containing chloride
L. M. OCAMPO,	1515	Performance of rust converter based in phosphoric and tannic
I. C. P. MARGARIT, O. R. MATTOS,		acids
S. I. CÓRDOBA-DE-TORRESI and F. L. FRAGATA		
C. X. Li and T. Bell	1527	Corrosion properties of active screen plasma nitrided 316
C. A. LI allu I. DELL	1327	austenitic stainless steel
E. TADA, K. NODA, S. KUMAI	1549	Monitoring of corrosion fatigue cracking using harmonic
and T. Tsuru		analysis of current responses induced by cyclic stressing
		J. J

K. Aramaki	1565	Preparation of self-healing protective films on a zinc electrode treated in a cerium(III) nitrate solution and modified with sodium phosphate and cerium(III) nitrate
	V	Corrosion diary Keywords for Corrosion Science
		NUMBER 7
L. DICKINSON Papers	1581	Publisher's note
A. Anderko, N. Sridhar and D. S. Dunn	1583	A general model for the repassivation potential as a function of multiple aqueous solution species
M. CHRISTOV and A. POPOVA	1613	Adsorption characteristics of corrosion inhibitors from corro- sion rate measurements
H. Wojtas	1621	Determination of corrosion rate of reinforcement with a modulated guard ring electrode; analysis of errors due to lateral current distribution
C. Gesnouin, A. Hazarabedian, P. Bruzzoni, J. Ovejero-garcia, P. Bilmes and C. Llorente	1633	Effect of post-weld heat treatment on the microstructure and hydrogen permeation of 13CrNiMo steels
Y. L. CHENG, Z. ZHANG, F. H. CAO, J. F. LI, J. Q. ZHANG, J. M. WANG and C. N. CAO	1649	A study of the corrosion of aluminum alloy 2024-T3 under thin electrolyte layers
R. E. MELCHERS	1669	Effect of small compositional changes on marine immersion corrosion of low alloy steels
C. S. Brossia and G. A. Cragnolino	1693	Effect of palladium on the corrosion behavior of titanium
M. A. SMIT, J. A. HUNTER, J. D. B. SHARMAN, G. M. SCAMANS and J. M. SYKES	1713	Effects of thermal and mechanical treatments on a titanium-based conversion coating for aluminium alloys
J. D. RAMSEY and R. L. McCreery	1729	Raman microscopy of chromate interactions with corroding aluminum alloy 2024-T3
G. Horányi	1741	Investigation of the specific adsorption of HSO <sub>4</sub> <sup>-</sup> (SO <sub>4</sub> <sup>2</sup> ) and Cl <sup>-</sup> ions on Co and Fe by radiotracer technique in the course of corrosion of the metals in perchlorate media
S. Suzuki, Y. Takahashi, T. Kamimura, H. Miyuki, K. Shinoda, K. Tohji and Y. Waseda	1751	Influence of chromium on the local structure and morphology of ferric oxyhydroxides
S. DOULAMI, K. BELIGIANNIS, TH. DIMOGERONTAKIS, V. NINNI and I. TSANGARAKI-KAPLANOGLOU	1765	The influence of some triphenylmethane compounds on the corrosion inhibition of aluminium
C. EXARTIER, S. MAXIMOVITCH and B. BAROUX Discussions	1777	Streaming potential measurements on stainless steels surfaces: evidence of a gel-like layer at the steel/electrolyte interface
E. M. GUTMAN	1801	Comments on the "Stress corrosion cracking of zirconium and zircaloy-4 in halide aqueous solutions" by S.B. Farina, G.S. Duffo, J.R. Galvele
J. R. GALVELE	1807	Reply to E.M. Gutmans: "comments on the "stress corrosion cracking of zirconium and zircaloy-4 in halide aqueous solutions" by S.B. Farina, G.S. Duffo, J.R. Galvele"
L. Caballero	1813	Discussion on "Failure mechanisms of high strength steels in bicarbonate solutions under anodic polarization" by E. Prover- bio and P. Longo[Corrosion Science 45 (9) (2003) 2017]
E. Proverbio and P. Longo	1821	Reply to Discussion on "Failure mechanisms of high strength steels in bicarbonate solutions under anodic polarization" by L. Caballero
Corrigendum		
Z. KLUSEK, Z. WAQAR, P. K. DATTA and W. KOZLOWSKI	1831	Corrigendum to: "Nanoscale studies of the oxidation and hydrogenation of graphite surface" [Corrosion Science 45 (2003) 1383–1393]

J. MABROUR, M. AKSSIRA.

and M. A. AMIN

J. R. RODDA

M. ABDALLAH

and Z. H. CAL

Y. NIU

G. GUNASEKARAN, S. CHONGDAR.

S. N. GAONKAR and P. KUMAR Y. Li, M. B. Ives, K. S. Coley and

Z. W. Li. W. GAO, D. L. ZHANG

J. H. XIANG, F. GESMUNDO and

P. SKELDON and G. E. THOMPSON M. PALJEVIĆ and M. TUDJA

L. SANTINACCI, G. I. SPROULE,

S. Moisa, D. Landheer, X. Wu,

A. BJØRGUM, J. MARDALEN and

Y. S. Li and M. Spiegel

H. HABAZAKI, H. KONNO,

K. SHIMIZU, S. NAGATA.

A. BANU, T. DJENIZIAN. P. SCHMUKI and M. J. GRAHAM O. Ø. KNUDSEN, B. S. TANEM.

M. HALLENSTVET

and I. L. MÜLLER

Corrosion diary VII Keywords for Corrosion Science

#### NUMBER 8

solutions

1833

M. AZZI, M. ZERTOUBI. N. SAIB, A. MESSAOUDI. A. ALBIZANE and S. TAHIRI J. DI MARTINO, C. RAPIN. 1849 Corrosion of metals and alloys in molten glasses. Part 1: glass P. BERTHOD, R. PODOR and electrochemical properties and pure metal (Fe, Co, Ni, Cr) P. STEINMETZ behaviours Corrosion of metals and alloys in molten glasses. Part 2: nickel J. DI MARTINO, C. RAPIN. 1865 P. BERTHOD, R. PODOR and and cobalt high chromium superalloys behaviour and protection P. STEINMETZ J. C. RUSHING and M. EDWARDS 1883 The role of temperature gradients in residential copper pipe corrosion V. DE. F. C. LINS. M. A. FREITAS 1895 Oxidation kinetics of an Fe-31.8Mn-6.09Al-1.60Si-0.40C alloy and E. M. DE PAULA E SILVA at temperatures from 600 to 900 °C Influence of the degree of polishing of alloy AA 5083 on its A. ABALLE, M. BETHENCOURT. 1909 F. J. BOTANA, M. MARCOS behaviour against localised alkaline corrosion and J. M. SANCHEZ-AMAYA

S. S. ABDEL REHIM, H. H. HASSAN 1921 Chronoamperometric studies of pitting corrosion of Al and (Al-Si) alloys by halide ions in neutral sulphate solutions P. KELLER and H.-H. STREHBLOW 1939 XPS investigations of electrochemically formed passive layers on

Effect of vegetal tannin on anodic copper dissolution in chloride

Fe/Cr-alloys in 0.5 M H-SO4 1953 Influence of bacteria on film formation inhibiting corrosion

1969 Corrosion of nickel-containing stainless steel in concentrated sulphuric acid 1981 Antibacterial drugs as corrosion inhibitors for corrosion of

aluminium in hydrochloric solution 1997 High temperature oxidation behaviour of a TiAl-Al<sub>2</sub>O<sub>3</sub> intermetallic matrix composite

2009 Models describing the degradation of FeAl and NiAl allovs induced by ZnCl2-KCl melt at 400-450 °C

2025 The oxidation of two ternary Ni-Cu-10 at.% Al alloys in 1 atm of pure O2 at 800-900 °C

2041 Incorporation of transition metal ions and oxygen generation during anodizing of aluminium alloys

2055 Anomalous high-temperature oxidation in the zirconium-copper 2067

Growth and characterization of thin anodic oxide films on n-InSb(1 0 0) formed in aqueous solutions

2081 Anodising as pre-treatment before organic coating of extruded and cast aluminium alloys

Corrosion diary

VII Keywords for Corrosion Science

### NUMBER 9

E. M. A. MARTINI, S. T. AMARAL 2097 Electrochemical behaviour of Invar in phosphate solutions at pH = 6.0

2117 De-alloying of type 316 stainless steel in hot, concentrated sodium hydroxide solution

2135 Effects of Na<sub>2</sub>SiO<sub>3</sub> on anodization of Mg-Al-Zn alloy in 3 M KOH solution

2143 A study of steel rebars embedded in concrete during 65 years

J. DEAKIN, Z. DONG, B. LYNCH and R. C. NEWMAN H. FUKUDA and Y. MATSUMOTO

G. S. DUFFO, W. MORRIS, I. RASPINI and C. SARAGOVI

G. BÄCK and P. M. SINGH	2159	Susceptibility of stainless steel alloys to crevice corrosion in ClO <sub>2</sub> bleach plants
C. L. ZENG, T. ZHANG, P. Y. Guo and W. T. Wu	2183	The corrosion behavior of two-phase Ni-Dy alloys in a eutectic (Li,K) <sub>2</sub> CO <sub>3</sub> mixture at 650 °C
C. Issartel, H. Buscail, E. Caudron, R. Cueff, F. Riffard, S. Perrier, P. Jacquet and M. Lambertin	2191	Influence of nitridation on the oxidation of a 304 steel at 800 °C
V. Barranco, S. Feliu Jr. and S. Feliu	2203	EIS study of the corrosion behaviour of zinc-based coatings on steel in quiescent 3 NaCl solution. Part 1: directly exposed coatings
V. Barranco, S. Feliu Jr. and S. Feliu	2221	EIS study of the corrosion behaviour of zinc-based coatings on steel in quiescent 3 NaCl solution. Part 2: coatings covered with an inhibitor-containing lacquer
F. CONTU, B. ELSENER and H. BÖHNI	2241	Serum effect on the electrochemical behaviour of titanium, Ti6Al4V and Ti6Al7Nb alloys in sulphuric acid and sodium hydroxide
S. B. FARINA and G. S. Duffó	2255	Intergranular to transgranular transition in the stress corrosion cracking of Zircaloy-4
S. AZUMA, T. KUDO, H. MIYUKI, M. YAMASHITA and H. UCHIDA	2265	Effect of nickel alloying on crevice corrosion resistance of stainless steels
M. A. HERNANDEZ, F. GALLIANO and D. LANDOLT	2281	Mechanism of cathodic delamination control of zinc-aluminum phosphate pigment in waterborne coatings
J. ŻUREK, E. WESSEL, L. NIEWOLAK, F. SCHMITZ, TU. KERN, L. SINGHEISER and W. J. QUADAKKERS	2301	Anomalous temperature dependence of oxidation kinetics during steam oxidation of ferritic steels in the temperature range $550-650$ °C
T. H. Muster and I. S. Cole T. H. Muster, A. K. Neufeld and I. S. Cole	2319 2337	The protective nature of passivation films on zinc: surface charge The protective nature of passivation films on zinc: wetting and surface energy
Short Communication M. F. Stroosnijder, C. Brugnoni, G. Laguzzi, L. Luvidi and N. De Cristofaro	2355	Atmospheric corrosion evaluation of galvanised steel by thin layer activation
E. LOVIDI and W. DE CRISTOFARO	I V	Corrosion diary Keywords for <i>Corrosion Science</i>
		NUMBER 10
J. I. MARTINS, T. C. REIS, M. BAZZAOUI, E. A. BAZZAOUI and L. MARTINS	2361	Polypyrrole coatings as a treatment for zinc-coated steel surfaces against corrosion
E. M. LEHOCKEY, A. M. BRENNENSTUHL and I. THOMPSON	2383	On the relationship between grain boundary connectivity, coincident site lattice boundaries, and intergranular stress corrosion cracking
Y. F. CHENG and F. R. STEWARD	2405	Corrosion of carbon steels in high-temperature water studied by electrochemical techniques
A. CHETOUANI, K. MEDJAHED, K. E. SID-LAKHDAR, B. HAMMOUTI, M. BENKADDOUR and A. MANSRI	2421	Poly(4-vinylpyridine-poly(3-oxide-ethylene) tosyle) as an inhibitor for iron in sulphuric acid at 80 $^{\circ}\mathrm{C}$
E. A. ABD EL MEGUID and A. A. ABD EL LATIF	2431	Electrochemical and SEM study on Type 254 SMO stainless steel in chloride solutions
Y. Zhu, K. Mimura and M. Isshiki	2445	A study of the initial oxidation of copper in 0.1 MPa oxygen and the effect of purity by metallographic methods
HL. WANG, RB. LIU and J. XIN	2455	Inhibiting effects of some mercapto-triazole derivatives on the corrosion of mild steel in 1.0 M HCl medium
J. A. González, J. M. Miranda and S. Feliu	2467	Considerations on reproducibility of potential and corrosion rate measurements in reinforced concrete
E. Krasicka-Cydzik	2487	Gel-like layer development during formation of thin anodic films on titanium in phosphoric acid solutions
M. A. MIGAHED, R. O. ALY and A. M. AL-SABAGH	2503	Impact of gamma-ray-pre-irradiation on the efficiency of corrosion inhibition of some novel polymeric surfactants

Correspondences

A. A. El-Moneim	2517	Passivity and its breakdown of sintered NdFeB-based magnets in chloride containing solution
K. Aramaki and T. Shimura	2533	Preparation of a one-dimensional polymer film on passivated iron by modification of a carboxylate ion self-assembled monolayer with octyltriethoxysilane for preventing passive film breakdown
K. SHIMIZU, H. FUJITANI, H. Habazaki, P. Skeldon and G. E. Thompson	2549	Examination of surface films on aluminium and its alloys by low-voltage scanning and scanning transmission electron micro- scopy
K. Aramaki and T. Shimura	2563	Prevention of passive film breakdown on iron by coverage with one-dimensional polymer films of a carboxylate ion self- assembled monolayer modified with alkyltriethoxysilanes
MG. Vergé, CO. A. Olsson and D. Landolt	2583	Anodic oxide growth on tungsten studied by EQCM, EIS and AES
W. WANG and M. L. FREE	2601	Prediction and measurement of corrosion inhibition of mild steel using nonionic surfactants in chloride media
	1	Corrosion diary
	V	Keywords for Corrosion Science

## NUMBER 11

A. O. VOLKOV, P. K. DATTA, J. S. BURNELL-GRAY and	2613	Hydrodynamic measurement of a single corrosion pit
R. COUPER R. M. SOUTO, Y. GONZÁLEZ-GARCÍA, S. GONZÁLEZ AND G. T. BURSTEIN	2621	Damage to paint coatings caused by electrolyte immersion as observed in situ by scanning electrochemical microscopy
Papers		
V. Deodeshmukh, A. Venugopal, D. Chandra, A. Yilmaz, J. Daemen, D. A. Jones, S. Lea and M. Engelhard	2629	X-ray photoelectron spectroscopic analyses of corrosion products formed on rock bolt carbon steel in chloride media with bicarbonate and silicate ions
L. W. TSAY, H. H. LIN and R. K. SHIUE	2651	Fatigue crack growth behavior of laser-annealed IN 718 alloy in hydrogen
C. CUEVAS-ARTEAGA, J. URUCHURTU-CHAVARÍN, J. PORCAYO-CALDERON, G. IZQUIERDO-MONTALVO and J. GONZALEZ	2663	Study of molten salt corrosion of HK-40m alloy applying linear polarization resistance and conventional weight loss techniques
M. MORENO, W. MORRIS, M. G. ALVAREZ and G. S. DUFFO	2681	Corrosion of reinforcing steel in simulated concrete pore solutions Effect of carbonation and chloride content
D. CHEBABE, Z. AIT CHIKH, A. DERMAJ, K. RHATTAS, T. JAZOULI, N. HAJJAJI, F. EL MDARI AND A. SRHIRI	2701	Synthesis of bolaamphiphile surfactants and their inhibitive effect on carbon steel corrosion in hydrochloric acid medium
B. TIRBONOD	2715	A model for an anodic dissolution cell in connection to its dimensions for stress corrosion cracking
T. TÜKEN, G. ARSLAN, B. YAZICI and M. ERBIL	2743	The corrosion protection of mild steel by polypyrrole/poly- phenol multilayer coating
G. ENGELHARDT and D. D. MACDONALD	2755	Unification of the deterministic and statistical approaches for predicting localized corrosion damage. I. Theoretical foundation
F. BENTISS, M. TRAISNEL, H. VEZIN, H. F. HILDEBRAND and M. LAGRENÉE	2781	2,5-Bis(4-dimethylaminophenyl)-1,3,4-oxadiazole and 2,5-bis(4-dimethylaminophenyl)-1,3,4-thiadiazole as corrosion inhibitors for mild steel in acidic media
Z. AVRAMOVIC and M. ANTONIJEVIC	2793	Corrosion of cold-deformed brass in acid sulphate solution
C. M. A. BRETT, I. IOANITESCU and F. TRANDAFIR	2803	Influence of the biological fluid on the corrosion of dental amalgam

Q. Lu, P. Skeldon, G. E. Thompson, D. Masheder,	2817	Transport numbers of metal and oxygen species in anodic tantala
H. HABAZAKI and K. SHIMIZU M. A. AMEER, E. KHAMIS and M. AL-MOTLAQ	2825	Electrochemical behaviour of recasting Ni-Cr and Co-Cr non-precious dental alloys
X. J. ZHANG, Y. NIU and F. GESMUNDO	2837	Oxidation of the three-phase Cu-20Ni-30Cr and Cu-20Ni-40Cr alloys at 700-800 °C in 1 atm O <sub>2</sub>
F. Zucchi, V. Grassi, A. Frignani and G. Trabanelli	2853	Inhibition of copper corrosion by silane coatings
	III	Corrosion diary Keywords for <i>Corrosion Science</i>
		NUMBER 12
U. KAMACHI MUDALI, N. BHUVANESWARAN,	2867	Corrosion behaviour of intermetallic aluminide coatings on nitrogen-containing austenitic stainless steels
P. SHANKAR and B. RAJ B. P. MOHANTY and D. A. SHORES	2893	Role of chlorides in hot corrosion of a cast Fe-Cr-Ni alloy. Part I: Experimental studies
D. A. Shores and B. P. Mohanty	2909	Role of chlorides in hot corrosion of a cast Fe-Cr-Ni alloy. Part II: thermochemical model studies
Y. N. Wu, P. L. KE, Q. M. WANG, C. Sun and F. H. WANG	2925	High temperature properties of thermal barrier coatings obtained by detonation spraying
R. S. DUTTA, R. PURANDARE, A. LOBO, S. K. KULKARNI and G. K. DEY	2937	Microstructural aspects of the corrosion of Alloy 800
A. IGUAL MUÑOZ, J. García Antón, S. López Nuévalos, J. L. Guiñón and V. Pérez Herranz	2955	Corrosion studies of austenitic and duplex stainless steels in aqueous lithium bromide solution at different temperatures
M. Sheffer, A. Groysman, D. Starosvetsky.	2975	Anion embedded sol-gel films on Al for corrosion protection
N. SAVCHENKO AND D. MANDLER R. M. MOREIRA, C. V. FRANCO, C. J. B. M. JOIA, S. GIORDANA and O. R. MATTOS	2987	The effects of temperature and hydrodynamics on the CO <sub>2</sub> corrosion of 13Cr and 13Cr5Ni2Mo stainless steels in the presence of free acetic acid
C. FONSECA, F. VAZ and M. A. BARBOSA	3005	Electrochemical behaviour of titanium coated stainless steel by r.f. sputtering in synthetic sweat solutions for electrode applications
R. MISHRA and R. BALASUBRAMANIAM	3019	Effect of nanocrystalline grain size on the electrochemical and corrosion behavior of nickel
DQ. ZHANG, LX. GAO and GD. ZHOU	3031	Inhibition of copper corrosion in aerated hydrochloric acid solution by heterocyclic compounds containing a mercapto group
M. ZIDOUNE, MH. GROSJEAN, L. ROUÉ, J. HUOT and R. SCHULZ	3041	Comparative study on the corrosion behavior of milled and unmilled magnesium by electrochemical impedance spectro-
N. Naing Aung and YJ. Tan	3057	scopy A new method of studying buried steel corrosion and its inhibition using the wire beam electrode
J. C. Rushing and M. Edwards	3069	Effect of aluminium solids and chlorine on cold water pitting of copper
D. HARDIE, J. Xu, E. A. CHARLES and Y. WEI	3089	Hydrogen embrittlement of stainless steel overlay materials for hydrogenators
M. L. Free	3101	A new corrosion inhibition model for surfactants that more closely accounts for actual adsorption than traditional models that assume physical coverage is proportional to inhibition Corrosion diary
	XXVII	Index for Volume 46, 2004 Keywords for Corrosion Science



